Dr Bhushan Mahadik
Director of Research, Prellis Biologics
Berkeley, California, USA

Dr Bhushan Mahadik, currently Director of Research at Prellis Biologics, is a pioneering biomedical researcher with over a decade of impactful work in tissue engineering, immunology, and translational medicine. A graduate of the University of California, Berkeley, and a Ph.D. holder in Chemical Engineering from the University of Illinois at Urbana-Champaign, he has consistently bridged the gap between engineering and biology.

His scientific journey includes leadership roles at the University of Maryland's NIH-funded Centre for Engineering Complex Tissues and cutting-edge work at Prellis Biologics, where he is spearheading the development of 3D Lymph Node Organoids for antibody discovery. Dr. Mahadik has published over 20 peer-reviewed articles, holds multiple patents in bio-printed organoids, and co-edited a landmark book on bone tissue engineering.

Recognized globally, he has won numerous awards, including the $50,000 Proof-of-Concept Award and accolades from TERMIS and the Society for Biomaterials. Passionate about mentoring, innovation, and impact-driven research, Dr. Mahadik represents the emerging class of Indian-origin scientists leading a revolution in regenerative medicine and precision health, contributing meaningfully to India's vision of a *Viksit Bharat*.

Dr Bhushan Mahadik: Engineering Life, Empowering Health, and Shaping the Future of Biomedical Science

In an age where science, innovation, and impact intersect to build a brighter future for humanity, **Dr Bhushan Mahadik** stands tall as a visionary researcher and technologist. With roots tracing back to India and a career shaped on global frontiers, he represents the new-age scientific leadership that's poised to drive India's *Viksit Bharat* vision — one where world-class research, equitable healthcare, and transformative technology go together.

From Berkeley to Bio-fabrication: The Journey Begins

Dr Mahadik's academic foundation was laid at the **University of California, Berkeley**, where he completed his undergraduate degree in Chemical Engineering and Materials Science. His early academic brilliance was evident when the MIT Lincoln Laboratory named a minor planet— **(17095) Mahadik**—in his honour, a rare distinction bestowed through the Intel International Science and Engineering Fair.

Eager to explore the cross-section of engineering and biology, he pursued his M.S. and Ph.D. at the **University of Illinois at Urbana-Champaign**, where he specialized in **stem cell biology, tissue engineering**, and **biomaterials**. His doctoral research made significant contributions to understanding how microenvironments regulate hematopoietic stem cell behaviour, paving the way for advanced regenerative therapies.

Innovation with Impact: A Researcher with Purpose

What sets Dr Mahadik apart is not just the depth of his scientific expertise, but the translational vision that informs his work. As a **Postdoctoral Research Associate**, he led the development of ***in vitro*** **platforms mimicking bone marrow and brain tumour biology**, combining microfluidics with computational modelling to simulate and study cell behaviour.

He then became a key figure at the **NIH Centre for Engineering Complex Tissues (CECT)** at the University of Maryland. As **Assistant Director**, he coordinated research, strategy, and operations for this $6 million initiative, bringing together over 10 academic partners. His work spanned **3D bioprinting**, **bioreactor-based platforms**, and **vascularized constructs**, contributing to a total of 14 publications during this period. A highlight was his role in developing the **world's first 3D bioprinting database**, providing open-access resources for the global biomedical community.

Pioneering at Prellis: Bioengineering the Future

Currently, Dr Mahadik leads scientific innovation as the **Director of Research at Prellis Biologics**, a trailblazing biotechnology company based in California. His team is at the forefront of creating **3D Lymph Node Organoids (LNOs)**—complex tissue models that replicate immune system functions. These structures are being used to revolutionize **antibody discovery** and **preclinical drug development**, potentially reducing the reliance on animal models and accelerating therapeutic timelines.

Previously, as Director of Tissue Engineering at Prellis, he established key **analytical methods** for assessing drug immunogenicity, scaffold functionality, and immunological modelling within organoids. His work elegantly integrates **engineering, immunology, and 3D printing**, demonstrating how interdisciplinary science can solve real-world biomedical challenges.

Awards, Patents, and Publications: A Legacy in the Making

Dr Mahadik's contributions have been consistently recognized, including:

- **Proof-of-Concept Award ($50,000)** from the University of Illinois
- **1st Place** in global research competitions (TERMIS World Congress, MRL Biological Conference)
- **Outstanding Abstract Award**, Society for Biomaterials Annual Meeting
- Over **20 high-impact peer-reviewed publications**
- **Multiple U.S. patents** on bio-printed organoid systems and platforms for antibody testing

He is also the **co-editor** of the Springer book *"Bone Tissue Engineering: Bench to Bedside using 3D printing"*, which bridges the gap between fundamental research and clinical application.

Mentorship and Outreach: Inspiring the Next Generation

Beyond research, Dr Mahadik is deeply invested in capacity-building and mentorship. He has mentored numerous undergraduate and graduate students, fostering a culture of scientific curiosity, ethical rigor, and interdisciplinary thinking.

He has served on panels and as a reviewer for prestigious journals, judged academic competitions, and volunteered for educational initiatives like **ASHA**, promoting the education of underprivileged children in India. His professional affiliations include **Tau Beta Pi**, the engineering honour society.

Relevance to *Viksit Bharat*: A Global Scientist with Indian Spirit

In the spirit of a ***Viksit Bharat***—a self-reliant, innovation-driven India—Dr Mahadik embodies the model of a global scientist making local impact. His work addresses some of the world's most pressing healthcare needs: **organ shortages**, **costly drug development**, and **personalized medicine**. Technologies he has helped develop can accelerate vaccine testing, improve transplant outcomes, and power India's biotech ambitions.

By connecting academia with industry, fundamental research with clinical applications, and East with West, Dr Mahadik represents the scientific diaspora's capacity to contribute meaningfully to India's growth story. His success is a testament to what Indian-origin talent can achieve on the world stage—and how it can circle back to uplift Indian science and healthcare.

A Glimpse Ahead: Vision for the Future

Looking forward, Dr Mahadik envisions a world where **regenerative medicine** is not a futuristic concept but an accessible solution. Whether it's **bioengineered tissues**, **organ-on-chip platforms**, or **AI-driven preclinical models**, he believes in building tools that make healthcare more humane, responsive, and personalized. In his own words: *"Science should not be confined to labs and journals; it should reach lives."* That ethos continues to guide his journey—from the bioreactors of Maryland to the organoid labs of California—with India always in his heart and impact as his compass.

Dr Bhushan Mahadik, truly a *Rising Star of Viksit Bharat*, symbolizes the confluence of intellect, innovation, and integrity—qualities that illuminate the path to a scientifically empowered and globally respected India.